

## ABSTRACT

Apparatus for measuring variation in scalefactor from a predetermined value for a vibrating structure gyroscope has a vibrating structure (R), a fixed primary and a fixed secondary drive means (1, 13) for putting and maintaining the vibrating structure (R) in vibrating resonance, a fixed primary and a fixed secondary pick off means (2, 6) for detecting vibration of the vibrating structure (R), with the drive and pick off means (1, 13, 2, 6) being located radially around the vibrating structure (R), quadrature component and real component loop systems (7, 8), automatic gain control and phase locked loop systems (5, 22), a sin/cos pick off resolver (38) for receiving signals from the primary and secondary pick off means (2, 6) and for outputting signals to the quadrature component and real component loop systems (7, 8) and to the automatic gain control and phase locked loop systems (5, 22), a sin/cos drive resolver (37) for receiving output signals from the quadrature component and real component loop systems (7, 8) and from the automatic gain control and phase locked loop systems (5, 22) and for feeding control signals to the primary and secondary drive means (1, 13), and an angular displacement control (40) for feeding angular displacement control signals to the sin/cos drive and pick off resolvers (38, 37) to control uniform displacement of the resolved carrier and response mode drives and pick offs axes angularly around the vibrating structure (R), with respect to a central axis of the vibrating structure, at a known rate.